

LIII.—On a Collection of Mammals from South Africa.

By H. LYSTER JAMESON.

THIS paper is based on a collection of about 440 mammals, representing 66 species, which I made in South Africa between 1902 and the end of 1907.

I have examined the material which I brought home at the British Museum, and I am indebted to Mr. Oldfield Thomas for courteously allowing me to make use of the magnificent series of South-African skins in the National Collection. Without the opportunity of comparing my material with this standard collection the identification of many of the specimens here recorded would have been impossible.

I have also to thank Mr. Thomas, Mr. R. C. Wroughton, and Dr. K. Andersen for much help and advice in naming difficult species.

(1) *Galago crassicaudatus* E. Geoff.

Woodbush Mountain, Zoutpansberg District, Transvaal (3000 to 6000 feet).

♂. 190, 194; ♀. 167, 189, 193.

The type locality of Geoffroy's *Galago crassicaudatus* is not given in his original description, but Peters states that Geoffroy's type example came from Mozambique (Reise Mossamb. 1852).

Geoffroy (Cat. Primates Mus. Pays-Bas, p. 328) also gives Mozambique as the locality.

The type example of *G. crassicaudatus kirkii* Gray is from Quilimaine; it is therefore not improbable that *kirkii* is a synonym for *crassicaudatus*. On the other hand, the type example of *G. garnetti* (Ogilvie), from Natal, and Grant's Zululand series (Rudd Collection) in the British Museum are, on the whole, browner and more heavily pencilled with black than examples of *G. crassicaudatus* from the type locality, Nyassaland and the Gorongosa Mountains, in the National Collection. Moreover, the Natal and Zululand form nearly always has a dark tail-tip, which is generally absent in *G. crassicaudatus*. It may be added that Grant has observed (Rudd Exploration of South Africa.—IX., P. Z. S. 1908, p. 166) that the calls of the two species are different.

It would appear, therefore, that the Natal and Zululand "Bush baby" (including in all probability *G. zuluensis*

Elliot, Ann. & Mag. Nat. Hist. (7) xx. p. 186) should be distinguished from the Mozambique form as *Galago crassicaudatus garnetti* (Ogilvie).

My specimens, from the Woodbush, are in many ways intermediate between *G. crassicaudatus* and *G. garnetti*, but they are on the whole nearer to the northern form.

They were shot at night in the bush.

(2) *Galago moholi* Smith.

New Agatha, Zoutpansberg District, Transvaal.

♂ (juv.). 319.

(3) *Genetta rubiginosa* Puch.

Tzaneen Estate, Zoutpansberg District, Transvaal (2500 ft.).

♂. 208, 243; ♀. 335.

These examples were obtained at a locality between Klein Letaba and Woodbush, *i. e.* from the type-locality of *G. letabæ* (Thos. & Schw.). *G. letabæ* has now been merged in this species (see Thomas and Wroughton, P. Z. S. 1908, p. 542).

(4) *Mungos paludinosus* (G. Cuv.).

= *Mungos galera* (Erxl.).

Tzaneen, Zoutpansberg District, Transvaal.

♂. 179, 325; ♀. 133.

Wakkerstroom, Transvaal, ♀ (specimen lost).

(5) *Mungos cauii* (Smith).

Johannesburg, Transvaal.

♂ (unnumbered); ♀. 340.

Tzaneen, Zoutpansberg District.

♂. 160, 253; ♀. 229, 367, 368.

The examples from Johannesburg are rather more grey than those from the Zoutpansberg.

(6) *Cynictis penicillatus steedmani* Ogilby.

Ventersburg Road, O.R.C.

♀. 306.

(7) *Lutra maculicollis* Licht.

Wakkerstroom, Transvaal.

Flat skin with skull. ♂. Shot Sept. 4th, 1903.

As the character on which the specific name of this otter is based is not present in my example, I append a few notes on the dimensions and colour of this specimen.

Dimensions:—

Head and body 560 mm.; tail 370; hind foot 117; ear 19; ear-opening to tip of nose 62.

Colour dark brown above, lighter brown on underside, underfur pale buff. Upper and lower lips whitish, the throat and inguinal region lighter than the belly. A small yellow spot on the inner side of each knee, but throat and chest unspotted. Whiskers fawn-coloured.

(8) *Ictonyx capensis* Kaup.

Wonderfontein, Potchefstroom District, Transvaal.

♂ (juv.). 2.

Also obtained at Malvern, Natal (not preserved).

(9) *Pæcilogale albinucha* Gray.

Tzaneen, Zoutpansberg District, Transvaal.

♂. 254.

(10) *Cephalophus grimmi* (Linn.).

Tzaneen, Zoutpansberg, Transvaal.

♀. 148.

(11) *Xerus capensis* (Kerr).

Ventersburg Road, O.R.C.

♂. 342, 349.

(12) *Graphiurus murinus* (Desmar.).

Waynek, Waterberg District, Transvaal.

♀. 417; ♀ (unnumbered).

(13) *Graphiurus nanus* (de Wint.).

Tzaneen, Zoutpansberg District, Transvaal.

♂. 147.

(14) *Tutera brantsii* (Smith).

Rooiberg, Waterberg District, Transvaal.

♂. 378, 380, 381, 382; ♀. 379.

Florida, Witwatersrand, Transvaal.

♂ (juv.). 3.

(15) *Tatera miliaria salsa* Wrought.

Tzaneen, Zoutpansberg District, Transvaal.

Series.

These examples are from a locality situated between the two stations from which Wroughton records his species.

This form is very near to *Tatera lobengulæ mashonæ*; indeed, my examples were first identified by Mr. Wroughton himself as that form.

The chief difference between these two forms seems to be the dimensions of the head and body and tail, and more particularly the size of the skull. My examples agree in these points more nearly with *salsa* than with *mashonæ*, as may be seen from the following dimensions:—

	Head and body.	Tail.	Hind foot.	Ear.	Skull.	
					Greatest length.	Basilar length.
* <i>Tatera lobengulæ mashonæ</i> Wr.	146.6	162.3	32.6	22.6	39.6	30.6
*—— <i>miliaria salsa</i> Wr.	125.3	146	29.6	19.6	37.6	28.6
—— ——— Wr. (average of nine adult examples in my collection)	132.4	143.3	31.4	24	37.5	28

This species is common everywhere about Tzaneen. In one area of low-lying sandy ground, about an acre in extent, there was a colony or warren which must have contained some dozens of burrows, most of which were occupied by this gerbille.

(16) *Otomys irroratus* (Brants).

Malvern, Natal.

♀. 411.

* Average of three specimens the dimensions of which are quoted in Wroughton's description (Ann. & Mag. Nat. Hist. (7) xvii. 1906, pp. 484, 485).

(17) *Otomys irroratus cupreus* Wrought.

Tzaneen, Zoutpansberg District, Transvaal (near type-locality).

Series.

The female of this species carries her young about attached to her mammæ, a habit that seems to be not uncommon among the smaller South-African rodents.

(18) *Dendromus melanotis* (Smith).

Tzaneen.

♂. 234.

(19) *Dendromus jamesoni* Wrought. (Ann. & Mag. Nat. Hist. (8) iii. 1909, p. 247).

Tzaneen.

Type ♀. 135. (B.M. no. 9. 1. 20. 27.)

♂. 152, 191; ♀. 149, 171, 172, 240.

Spirit ♂. 256.

This species may often be found in the deserted hanging nests of weaver-birds both in the bush and in reed-beds and "Tambutie" grass.

(20) *Steatomys pratensis* Peters.

Tzaneen.

Series.

This little mammal is generally found in a nest of grass situated in a short burrow about 12 inches in length. The entrance to the burrow is closed with earth. The natives (Mashangaan) dig out the mice, which are always enormously fat, as food.

The habits of the fat-mouse in summer are not known.

In captivity it is sluggish, coming out for a short while at night to feed, and accumulating large quantities of grain in its nest, to be eaten at leisure.

If a new example is introduced into a cage of *Steatomys*, it is at once killed and eaten.

Specimens which I kept in my house at Johannesburg showed no signs of a change of habits by the middle of November (when they were sent to Europe), but it is probable that a careful study of this species, which thrives in captivity, would reveal a period of activity in the summer.

(21) *Mus chrysophilus* de Wint.

Makapan's Poort, Potgieter's Rust, Transvaal.

♂. 255.

(22) *Mus chrysophilus tzaneenensis*, subsp. n.

Tzaneen.

Series.

Malvern, Natal.

♂. 414.

Specimens of Darling's rat from the North-eastern Transvaal and Natal are darker than examples from the type-locality of *Mus chrysophilus* (Mazoe, Mashonaland).

A large series which I brought home from Tzaneen differs so markedly from the type series in the British Museum that I propose to apply the above name to the form frequenting the North-eastern Transvaal. The Natal and Zululand forms, unless they also deserve separate subspecific rank, belong to this subspecies rather than to the type species.

Description.—Size as in the type form. Colour altogether darker and less golden, the back being heavily pencilled with black, so that the predominant shade is a dark chestnut-brown, whereas that of *Mus chrysophilus* is tawny brown.

The ear is a little larger, and the tail perhaps a shade shorter in proportion to the body, than in *M. chrysophilus*.

The dimensions of eight full-grown examples in my collection are as follows:—

No.	Sex.	Head and body.	Tail.	Hind foot.	Ear.
*144....	♂	142	160	28	24
120....	♂	155	162	29	22
157....	♂	152	162	29	21
116....	♀	145	157	23	22
117....	♂	145	159	29	23
123....	♀	145	168	28	21
207....	♀	145	157	28	21
162....	♀	147	160	27	23

* Type.

The dimensions of the type of *M. chrysophilus* de Wint. are:—

Head and body 146 mm.; tail 168; hind foot 28; ear 19.
Tzaneen, Zoutpansberg District, Transvaal (2500 feet).

Type ♂. 144. (B.M. no. 9. 7. 2. 15.)

Caught 7th July, 1907.

(23) *Mus namaquensis monticularis*, subsp. n.

Johannesburg, Transvaal.

Series.

Wonderfontein Caves, Potchefstroom District, Transvaal.

♀ (unnumbered).

On comparing a series of some two dozen skins and half a dozen spirit-specimens of this "golden rat," which I collected on the kopjes of the Witwatersrand around Johannesburg, with the material in the British Museum, on which Thomas and Wroughton based their revision of the *Mus namaquensis* group (P. Z. S. 1908, p. 548), I find that it is necessary to create a new subspecies for the form occurring in the Southern Transvaal.

Description.—Colour between that of *Mus namaquensis typicus* and *Mus namaquensis auricomus*, slightly browner than the former and less rufous than the latter. Belly white, with slate-coloured bases to the hairs; these bases are darker than in any other form except *Mus namaquensis centralis*.

Slightly larger than any of the other forms.

Dimensions (of the type):—

Head and body 120 mm.; tail 157; hind foot 26; ear 20.

The tail is rather shorter in proportion to the head and body than in the other forms, the ratio of the length of the head and body to the length of the tail being about 10:12, while the corresponding ratio in other forms varies from 10:13 to 10:14.

Tail-rings 11 to the cm.

Young examples are browner and less golden in colour than adults.

Type ♀ (unnumbered). B.M. no. 9. 7. 2. 10. Johannesburg, 20th May, 1907.

This species is essentially a rock-rat, and is by far the commonest rat on the stony kopjes around Johannesburg.

It makes its nest (of grass, leaves, &c.) in clefts in rocks or in holes under boulders.

I have never found this species away from rocky ground, whereas the allied *M. chrysophilus* is a veld-rat, especially

frequenting the native "Lands" * and the scrub country of the bush-veld.

The following table shows at a glance the distinctive characters of the five races of *Mus namaquensis* which are represented in the British Museum:—

- | | | |
|--|--|--|
| A. Ventral hairs white to the base, or with but slight traces of grey. | | |
| (a) | Bright golden brown above, belly pure white. (Mashonaland and Matabeleland.) | [<i>comus</i> de Wint.
<i>M. namaquensis auri-</i> |
| (b) | Colour browner, with less gold. Some examples have a trace of grey at bases of ventral hairs. (Kuruman.) | [G. Sm.
<i>M. namaquensis lehocla</i> |
| B. Ventral hairs with grey bases. | | |
| (a) | Bases of ventral hairs pale grey, ground-colour above golden-yellow. (Namaqualand.) | <i>M. namaquensis</i> Sm. |
| (b) | Bases of ventral hairs dark slate-colour. | |
| (i.) | Colour golden brown. (South Transvaal.) | [<i>cularis</i> , subsp. n.
<i>M. namaquensis monti-</i> |
| (ii.) | Colour browner, with less gold. (Deelfontein, Cape Colony.) | [Schw.
<i>M. namaquensis centralis</i> |

[*Mus granti* Wroughton (Ann. & Mag. Nat. Hist. (8) i. 1908, p. 257) appears to me to be a variety (or perhaps the young) of *Mus namaquensis centralis*, from the type-locality of which species it is described.]

Apart from the size and skull-characters, rats belonging to this group may readily be distinguished at a glance from the southern members of the *Mus chrysophilus* group by their much more hairy tails.

(24) *Mus coucha* A. Smith.

Wonderfontein Caves, Potchefstroom District, Transvaal.

♀ (unnumbered).

Kopjes near Johannesburg.

♂. 291, 391; ♀ (unnumbered).

(25) *Mus microdon zuluensis* Thos. & Schw.

Malvern, Natal.

♀. 413, 414.

Tzaneen.

Series.

* *I. e.* cultivated ground, as distinguished from "Veld" or uncultivated ground.

Thomas and Wroughton (P. Z. S. 1908, p. 545), in separating *Mus microdon* Peters from *Mus coucha* A. Smith, express a doubt whether their Zululand form, originally named *Mus coucha zuluensis*, can be retained as a subspecies distinct from *Mus microdon*.

While the form from Natal and Zululand and the Eastern and North-eastern Transvaal undoubtedly belongs to the long-tailed *microdon* group rather than to the short-tailed *coucha* group, it is, I think, separable from *Mus microdon* on account of its darker and more slaty colour.

Peters's figure of *Mus microdon* (Reise Mossamb., Säugeth. Taf. xxxvi. fig. 1) depicts an almost fawn-coloured mouse, and the series collected by Mr. Grant at Tette, the type-locality, agree in colour with this figure. On the other hand, the southern form, while very variable, is generally a dark grey rat. I therefore retain the name *Mus microdon zuluensis* for this form.

I am not convinced that my series from Tzaneen may not contain a second and larger species of multimammate rat; but this is such a bewildering group that its ramifications and variations will only be thoroughly understood when a series of breeding experiments, accompanied by observations on colour-changes due to season and age, can be carried out at one of the South-African museums or zoological gardens.

The multimammate rats in South Africa approach more nearly in their habits to the imported *Mus decumanus*, *Mus rattus*, and *Mus musculus* than any other native species.

They are found everywhere. They are equally at home on the veld and kopjes, in the bush and scrub, or living a semi-aquatic life on the banks of streams and vleis. They are the first rats to invade houses, and on the veld and in the smaller dorps, before the arrival of *Mus rattus* and *Mus decumanus*, they are the common house-rats. Owing to the number of young produced at a birth, they quickly became a pest in houses.

They are unable, however, to compete with the imported forms, and have consequently disappeared in the larger towns, where the latter have become established.

Unlike most of the South-African species of *Mus*, which are gentle and docile in captivity, and can often from the first be handled with impunity, this species is fierce and aggressive, biting viciously when handled, and attacking and killing the other species (*Arvicanthis*, *Mus namaquensis*, &c.) which may be put in the same cage.

(26) *Mus rattus* Linn.

Johannesburg.

♂. 4; ♀. 294.

(27) *Mus musculus* Linn.

Johannesburg.

♂. 23.

Pretoria.

♀. 24.

(28) *Leggada minutoides* (Smith).

Johannesburg.

♀. 111.

Tzaneen.

♀. 153.

It is possible that, when a larger number of examples is available for comparison, the Transvaal form will have to be separated from *Leggada minutoides*, the type-locality of which is the Cape.

(29) *Thamnomys dolichurus* (Smuts).

Malvern, Natal.

♂ (unnumbered).

(30) *Saccostomus campestris* Peters.

Tzaneen.

♂. 209; ♀. 360, 361.

Thomas treats Grant's woodbush pouched-rat as this species, the type-locality of which is Tette on the Zambesi. My specimens approach more nearly to *Saccostomus mashonæ*, de Wint.; but, until material is available for a careful revision of the pouched-rats, it is difficult to say to which form any example should be referred, or even to decide what forms are worthy of specific or subspecific rank.

(31) *Dasymys incomtus* (Sund.).

Tzaneen.

Series.

(32) *Arvicanthis dorsalis* (Smith).

Tzaneen.

Series.

(33) *Arvicanthis pumilio* (Sparm.).

Tzaneen.

Series.

Wonderfontein, Potchefstroom District, Transvaal.

Series.

(The above examples have been identified by Mr. Wroughton as belonging to the subspecies *dilectus* de Winton.)

Pietersburg, Transvaal.

♂. 113.

Riverton, Griqualand West.

♀ (spirit).

(I make no attempt to refer either of the above single examples to any of the numerous subspecies of this species.)

(34) *Mystromys albicaudatus* (Smith).

Wakkerstroom, Transvaal.

Three examples, October 1903 (now in Pretoria Museum).

Wonderfontein, Potchefstroom District, Transvaal (specimens now in Pretoria Museum).

I kept several examples, caught at Wonderfontein, in captivity for some months. These examples were found living in a warren occupied by the meerkat (*Suricata suricatta*). They bred freely in captivity. The period of gestation is about thirty-seven days, and from two to five young are produced at a birth. Apparently litter succeeds litter at intervals of thirty-seven days throughout the entire year, as females caught in October 1903 at Wakkerstroom and in September 1906 at Wonderfontein were all pregnant, while in April 1907 half-grown young and a pregnant female were captured at Wonderfontein, and the latter, kept first at my house and subsequently at the Pretoria Zoological Gardens, went on breeding right through the winter.

The female carries her young about attached to her mammæ, and if one happens to become detached, picks it up in her mouth and carries it back to the nest.

The young ones are dragged about in this manner until about a week before the next litter is born. Reimpregnation occurs a few hours after the birth of the litter.

Grant has observed that cats will not eat this species (presumably owing to a protective secretion of some kind). This may account for its living with impunity among meerkats.

Mystromys shows little fear of man when caught, and becomes very tame and playful in captivity.

(35) *Georychus hottentottus* (Lesson).

Malvern, Natal.

♂. 415; ♀. 416. (January 1908.)

Tzaneen.

♂. 329.

(36) *Georychus holosericeus* Wagner.

Johannesburg.

Series.

(37) *Georychus jorisseni*, sp. n.

Waynek, Waterberg District, Transvaal.

♀. 383, 402.

Tzaneen, Zoutpansberg District, Transvaal.

♂. 213 (juv.); ♀. 224, 225, 226, 269, 330, 355 (juv.).

From a careful examination of the specimens in my collection and in the British Museum, it appears that there are at least four mole-rats, in addition to the several *blesmol*s and the Angolan *G. bocagei*, in South Africa:—

(a) In Southern Cape Colony, and up through the Coast Belt of Natal and Zululand, as far as the Zoutpansberg, *G. hottentottus* is found, with its local race *G. hottentottus talpoides* Thos. in the Knysna.

(b) In the interior and on the High Veld, from Graaf Reinet (type locality) through the Orange River Colony to the Witwatersrand, and down into the highlands of Natal (Estcourt), the larger and stouter *G. holosericeus* Wagner, is found.

(c) In Southern Rhodesia this form appears to be replaced by the very closely allied *G. ninrodi* de Winton, which differs mainly in its skull-characters.

(d) Finally, in the Waterberg there is a much smaller species, which I have named after Mr. E. Jorissen, of Johannesburg, who kindly invited me to accompany him on one of his geological expeditions to the Waterberg, on which occasion I obtained the type here described.

Georychus jorisseni probably extends right across the Bushveld in the Northern Transvaal, as a form which I cannot, from available material, distinguish from it occurs in the Zoutpansberg, alongside of *G. hottentottus*, and in Natal (Grant's Illovo series in British Museum).

Georychus jorisseni may be described as follows:—

Much smaller than *G. hottentottus*, with a rather warmer colouring. Skull much smaller and slighter, zygomatic arches rather depressed, giving the orbit a narrower outline when seen from above.

Dimensions of the type :—

Head and body 100 mm. ; tail 17 ; hind foot 18.

Skull : greatest length 28 ; basilar length 24 ; zygomatic breadth 18 ; breadth of upper incisors at base 4 ; length of upper molars in row 4·5 ; diastema 9·5.

Type ♀. No. 402 (B.M. no. 9. 7. 2. 23). Waynek, Waterberg District, Transvaal, December 1907.

The following table shows the dimensions of the various forms referred to above :—

Species.	No.	Head and body.			Skull.					
		Head.	Tail.	Hind foot.	Gr. length.	Bas. length.	Zyg. br.	Up. inc. br.	Up. mol.	Diastema.
<i>G. jorissenii</i> (Waynek).....	♀. 402 (Type)	100	17	18	28	24	18	4	4·5	9·5
„ (Waynek).....	♀. 383 (Cotype)	107	16	18	..	..	..	3·5	5	9
„ (Tzaneen).....	♀. 330	115	17	18	29	24	21	4	5	10
<i>G. hottentottus</i> (Natal)	♀. 416	121	19	21	32	26	23	4·5	5·7	10·5
<i>G. hottentottus talpoides</i>	(Type) B.M.	126	18	21	33	27	22	..	5·5	9
<i>G. holosericeus</i> (Joh'burg) ..	♂. 112	130	17	25	36	31	25	6	6	11
<i>G. nimrodi</i>	♂ Type, B.M.	..	..	22	35	31	27	..	6·5	12

(38) *Pedetes caffer* Pallas.

Boksburg, Witwatersrand, Transvaal.

♂. 375.

This specimen, as might be expected, is intermediate in characters between Wroughton's *Pedetes caffer orangia* from the Orange River Colony and *Pedetes caffer salina* from the Zoutpansberg.

It agrees with the former in the lighter ground-colour, and with the latter in having a larger proportion of black.

(39) *Pedetes caffer orangia* Wroughton.

Ventersburg Road, O.R.C.

♀. 5.

(40) *Thryonomys swinderenianus* (Temm.).

Tzaneen.

♂. 247, 353; ♀. 245, 367.

(41) *Lepus zuluensis* Thos. & Schw.

Wonderfontein, Potchefstroom District, Transvaal.

♀. 7.

This example extends the range of this species considerably to the westward. Although slightly larger than Zululand examples in the British Museum, the skull-characters and the ears agree with those of the type specimen.

(42) *Lepus ochropus* Wagner.

Ventersburg Road, O.R.C.

♂. 6, 8, 339, 374.

(43) *Pronolagus ruddi randensis* Jameson (Ann. & Mag. Nat. Hist. (7) xx. 1907, p. 404).

Johannesburg.

♂. 280; ♀. 108. (B.M. no. 9. 3. 2. 20.) Type.

Makapan's Poort, Potgieter's Rust, Transvaal.

♂. 350.

The specimen from Makapan's Poort, which may be taken as geographically an extension of the Waterberg Mountains, is decidedly more rufous than the type, but it would be unwise, in the absence of further material, to give it a distinct name. Probably almost every isolated group of kopjes has its own local race of *Pronolagus*, as the hares of this genus seem very sedentary in their habits.

(44) *Epomophorus wahlbergii* Sund.

Tzaneen, Zoutpansberg District (October 1907).

♂. 372; ♀. 371, 373.

Malvern, Natal.

♂. 424.

(45) *Epomophorus angolensis* Gray.

Tzaneen, Zoutpansberg District (June & July, 1907).

♂. 126; ♀. 222.

Kalomo, N.W. Rhodesia.

♀. 9.

For the identification of the above two species I am indebted to Dr. Knud Andersen, who is studying this very difficult genus.

It is interesting to note that while the form which occurs at Tzaneen in considerable numbers in the spring and summer seasons (October) is the commoner South-east African form, *E. wahlbergii*, the two examples obtained in the winter months (June and July) belonged to the northern form *E. angolensis*, which has not hitherto been recorded from so far south.

The specimens of *E. angolensis* obtained at Tzaneen were feeding on bananas. The bats of this genus are evidently to some extent migratory, as I am told that during the summer months numbers of them (evidently *E. wahlbergii*) arrive at Tzaneen, where they feed largely on guavas.

In June and July 1907 only a few *Epomophori* were to be seen, and the two examples obtained proved to be *E. angolensis*, and not *E. wahlbergii*.

(46) *Rhinolophus augur* K. And.

Wonderfontein Caves, Potchefstroom District, Transvaal.
Series.

Witwatersrand (Krugersdorp, Langlaagte, and Johannesburg). (In deserted mines and workings.)

Series.

Makapan's Caves, Potgieter's Rust, Transvaal.

♂. 351, 352.

This bat comes out later than most species, and may be seen flitting in and out among the "thorns" and low bushes, seldom rising sufficiently high to allow of its being shot.

(47) *Hipposiderus caffr* (Sund.).

Malvern, Natal.

♀. 409, unnumbered.

These two examples were caught at night with a butterfly-net, flying under the verandah of Mr. Cecil N. Barker's house at Malvern.

(48) *Petalia capensis* (Smith).

Fountain Grove, near Pretoria.

Series.

Malvern, Natal.

Series.

(49) *Pipistrellus nanus* (Peters).

Malvern, Natal.

Series.

This little bat often sleeps in the tubes formed by the young convolute leaves of the banana. No doubt the adhesive swelling at the base of the thumb enables it to cling to the slippery cuticle of the leaf.

(50) *Pipistrellus rusticus* Tomes.

Tzaneen.

♀ . 370.

(51) *Pipistrellus kuhlii fuscatus* Thos.

Malvern, Natal.

♂ . 423.

(52) *Vespertilio capensis* Smith.

Johannesburg.

♂ . 12.

(Spirit-specimens from Johannesburg, Langlaagte, and Pretoria.)

(53) *Scotophilus nigrita dingani* (Smith).

Malvern, Natal.

♀ . 410.

Shot on the wing. Flies high, flight resembling that of the Noctule.

(54) *Miniopterus natalensis* (Smith).

Tzaneen.

♀ . 212. (July 1907.)

Wonderfontein Caves, Potchefstroom District, Transvaal.

Series (April 1907).

This species occurs in large numbers in the famous "River Cave" at Wonderfontein, where it forms dense clusters, numbering hundreds of individuals, in the roof of the cave. These bats come out rather late. On the wing they look like a larger species, owing to the length of the wings.

The Tzaneen specimen, which was shot on the wing, was one of two which were seen every evening just before dark, hawking up and down a row of Eucalyptus trees, at a height of about 40 feet.

(55) *Miniopterus breyeri*, sp. n.

I name this bat after my friend and former colleague Dr. H. G. Breyer, Chairman of Senate of the Transvaal University College, who accompanied me on the last of my collecting-expeditions in the Transvaal, when the series under description were captured.

It differs so markedly from the form inhabiting eastern South Africa that it requires a name to itself.

I may here say that it is probable that all the South African *Miniopteri*, with the exception perhaps of *M. minor*, Peters, will prove to be geographical subspecies of *M. schreibersi*, a form originally described from Southern Europe.

Sclater's 'Fauna of South Africa' treats the common South-African *Miniopterus* as *M. schreibersi*, but this form, which is of a light grey colour, does not appear to extend into South Africa at all.

Description.—Size as in *M. natalensis*, but lighter in colour. The hairs on the dorsal surface are reddish brown or reddish grey, the tips with a slight tinge of red-gold. On the ventral surface the tips of the hairs are rather lighter, becoming almost white in the pubic region.

The bases of the hairs are never black, as in *M. natalensis*.

Dimensions of the type:—

Head and body 56 mm.; tail 53; ear 11; tragus 6; forearm 46.

Type ♀. No. 398 (B.M. no. 9.7.2.6).

These examples were found in the great cave at Gatkoppies, in the Waterberg District of the Transvaal. There must have been many hundreds in one small chamber, the roof of which was black for many yards with a continuous cluster of bats.

All the examples examined were females.

The following table sets forth, as clearly as possible, the distinctive features of the known South-African species of *Miniopterus*:—

A. Larger: forearm 43-47 mm.

(a) Fur with well-marked dark brown or black bases.

(i.) Hairs very dark, both basally and at tips.

(a) Larger: skull 15.5 mm., forearm 45-46.

Type-loc. "Interior of Cafferaria" (also Knysna) [1841. *M. dasythrix* Temm.,

(β) Smaller: skull 14.7 mm., forearm 43-44.

Type-loc. Knysna [1906. *M. fraterculus* Thos.,

- (ii.) Hairs black at the base, with light tips.
Forearm 45-47 mm.
Type-loc. "South Africa towards Natal" *M. natalensis* Smith, [1834.
(Probably includes *M. scotinus* * Sund., 1847. Type-loc. "Caffraria.")
- (b) Bases of hairs scarcely darker than the rest of the fur, which is reddish brown.
Forearm 45-47 mm., skull 15.5.
Type-loc. Gatkoppies, Waterberg District *M. breyeri*, sp. n.
- B. Smaller: forearm 37 mm.
Type-loc. Coast of Zanzibar *M. minor* Peters, 1866.

(56) *Nyctinomus bocagei* Seabra (Jornal de Ciencias, Lisboa, (2) vi. 1900, pp. 84 & 127).

Potchefstroom, Transvaal.

Series (all males).

Florida, Witwatersand, Transvaal.

♂. 343; ♀. 344, 345.

These specimens, representing a *Nyctinomus* with ears separated at their bases, are not *N. ægyptiacus*, and seem to come nearest to *N. bocagei*, described by Seabra from Angola, from which they may perhaps have to be separated as a distinct form, when sufficient material from that locality is available for comparison.

This bat occurs in the roofs of churches and other buildings, and flies early, leaving the buildings with a swift, swallow-like flight while it is still daylight.

(57) *Erinaceus frontalis* Smith.

Ventersburg Road, O.R.C.

♂. 377.

Rooiberg, Waterberg District, Transvaal.

♀. 404.

Common around Johannesburg and Pretoria.

* I have examined the co-type of Sundevall's species in the British Museum, and can see no ground for retaining it as a separate species. The very hairy interfemoral membrane and the band of hairs on the wing-membrane between elbow and ankle are not present in this specimen, but occur in a Madagascar species, wrongly referred by Dobson to this species, but since described by Thomas as *M. manavi*.

- (58) *Elephantulus rupestris jamesoni* Chubb ('Annals of the Transvaal Museum,' vol. i. p. 181).

Witwatersrand series.

Diurnal. May be seen any day hopping over the rocks on the stony kopjes around Johannesburg. (Observatory, Houghton Estate, Orange Grove, &c.).

Omnivorous. Thrives in captivity.

- (59) *Nasilio brachyrhynchus* (Smith).

Tzaneen.

♂. 205; ♀. 188; ♀ juv. 376.

These specimens are a little darker than Grant's examples from Klein Letaba in the British Museum, approaching more nearly to specimens in the National Collection from Mazoe in Mashonaland.

Frequents the open veld. Diurnal.

- (60) *Myosorex tenuis* Thos. & Schw.

Tzaneen.

♂. 223.

- (61) *Crocidura flavescens* Geoff.

Malvern, Natal.

♂. 405.

Spirit-specimens (unnumbered).

- (62) *Crocidura* sp. (1).

Tzaneen.

♂. 246.

(Apparently near to *C. argentata*, which is recorded from Woodbush.)

- (63) *Crocidura* sp. (2).

Tzaneen.

♂. 180, 341.

- (64) *Crocidura* sp. (3).

Johannesburg.

♂ (unnumbered).

Spirit-specimen.

(The above three species cannot be safely identified, as the material available is insufficient.)

(65) *Pachyura varilla* Thos.

Wonderfontein, Potchefstroom District, Transvaal.

♂ and ♀ (unnumbered).

These examples were obtained in deserted "ant-hills" (termites' nests).

(66) *Amblysomus hottentottus* (Smith).

Malvern, Natal.

♀ (unnumbered).

LIV.—*Two new Species of Colobus from Central Africa,*
collected by Mr. R. Grauer. By GUY DOLLMAN.

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THE British Museum has acquired from Herr Rolle, of Berlin, examples of the two following new species of *Colobus*, obtained by Herr R. Grauer during a recent Central African expedition.

Colobus graueri, sp. n.

Allied to *Colobus foai*, Pousarg., but differing from that form by having a dark grey-coloured under surface to the body.

Size and general proportions similar to *C. foai*. Hair soft and rather long, measuring about 105 mm. in length on back and sides. Superciliary stripe black, extending back as far as ears, the hairs intermingling with the black crescentic patches situated just anterior to the ears. Crest on top of head bright red (between fawn no. 4 and dull brick-red no. 4, 'Repertoire de Couleurs'). Cheeks and sides of neck pale chestnut (dead leaf no. 3, 'Repertoire'), getting lighter and greyer towards the shoulders. Back of head and neck dark reddish brown (maroon no. 2, 'Repertoire'); anterior part of back blackish brown (reddish black no. 3, 'Repertoire'), grading to a chocolate colour (dark chocolate-brown no. 3, 'Repertoire') behind the shoulders. Posterior portion of back, rump, and sides of body reddish brown (madder-brown, no. 2, 'Repertoire'). Upper surface of limbs very similar in colour to rump and sides, but rather richer (between fawn no. 4 and madder-brown no. 2, 'Repertoire').